



PATENT
Case No. DP-309838

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re patent application of:)
Mondragon-Parra, et al.) Examiner: Dunwoody, Aaron M.
Serial No.: 10/730,309) Group Art Unit: 3679
Filed: December 8, 2003) Confirmation No.: 2196
Title: CROSS-STRAIGHT GROOVE JOINT)
Attorney Docket No.: DP-309838)

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Dear Sir:

Appellants herewith respectfully present their Brief on Appeal as follows:

REAL PARTY IN INTEREST

The real party in interest is Assignee Delphi Technologies, Inc., by virtue of an assignment executed by the inventors on December 1, 2003, and recorded the United States Patent and Trademark Office on January 2, 2004, at reel number 014847, frame number 0251.

RELATED APPEALS AND INTERFERENCES

There are no prior or pending appeals, interferences or judicial proceedings known to Appellants, Appellants' legal representatives, or Assignee which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

STATUS OF CLAIMS

Claims 1, 2, 4, 5 and 8-22 have been rejected and are being appealed.

Claims 3, 6 and 7 have been canceled.

STATUS OF AMENDMENTS

All amendments have been entered, and no amendments were requested after final rejection.

SUMMARY OF CLAIMED SUBJECT MATTER

A concise explanation of the subject matter defined in each of the independent claims involved in the appeal (claims 1, 10 and 12) is provided below:

Independent claims 1, 10 and 12 are directed generally to a stroking ball-type constant velocity joint (10) having an inner joint member (12) having a longitudinal axis (40) and an outer surface (14) defining a plurality of radially outwardly facing substantially longitudinal grooves (16, 16b, 16d, 16f) and a plurality of radially outwardly facing substantially helical grooves (16a, 16c, 16e, 16g). See Fig. 1 and specification paragraph 0022 as amended March 31, 2006. The plurality of helical grooves includes at least one pair of right-hand grooves (16c, 16g) and at least one pair of left-hand grooves (16a, 16e), the grooves of each pair being located on opposite sides of the inner joint longitudinal axis (40). See Fig. 1 and specification paragraph 0020 as amended March 31, 2006.

In each claim the joint is also provided with an outer joint member (28) having an inner surface (34) defining a plurality of radially inwardly facing grooves (36, 36a, 36b, 36c, 36d, 36e, 36f, 36g), and a plurality of balls (18, 18a, 18b, 18c, 18d, 18e, 18f, 18g) disposed in the cooperating or corresponding grooves of the inner and outer joint members, and through which balls torque is transmitted between the inner and outer joint

members. See Fig. 7, and Fig. 4 as amended March 31, 2006, and specification paragraph 0002.

The embodiment(s) associated with, described or depicted in the above-identified reference numerals, specification paragraphs and drawings with respect to the aforementioned independent claims are by way of example only and are not intended to in any way limit the scope of these claims.

GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Despite the allowance of claims 1, 4, 5 and 8-21, and rejections of claims 2 and 22 under 35 U.S.C. § 102(b) over U.S. Patent No. 4,678,453 (Aucktor, et al.), being indicated in the Final Office Action dated September 14, 2006, it appears from the Examiner's subsequent comments that the prior art rejections made prior to the Final Office Action are now being maintained.

Thus, with reference to the Office Action dated April 13, 2006, it is Appellants' understanding that:

1. Claims 1, 2, 4, 5, 8, 10, 21 and 22 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,678,453 (Aucktor, et al.);
2. Claims 1, 2, 4, 5 and 8-22 stand rejected under 35 U.S.C. §102(b) as being anticipated by DE 3818730; and
3. Claims 9 and 11-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Aucktor, et al. '453 in view of U.S. Patent No. 5,685,777 (Schwarzler).

It is these three grounds of rejection that are presented for review.

ARGUMENT

1. Ground for Rejection: Anticipation by Aucktor, et al. '453

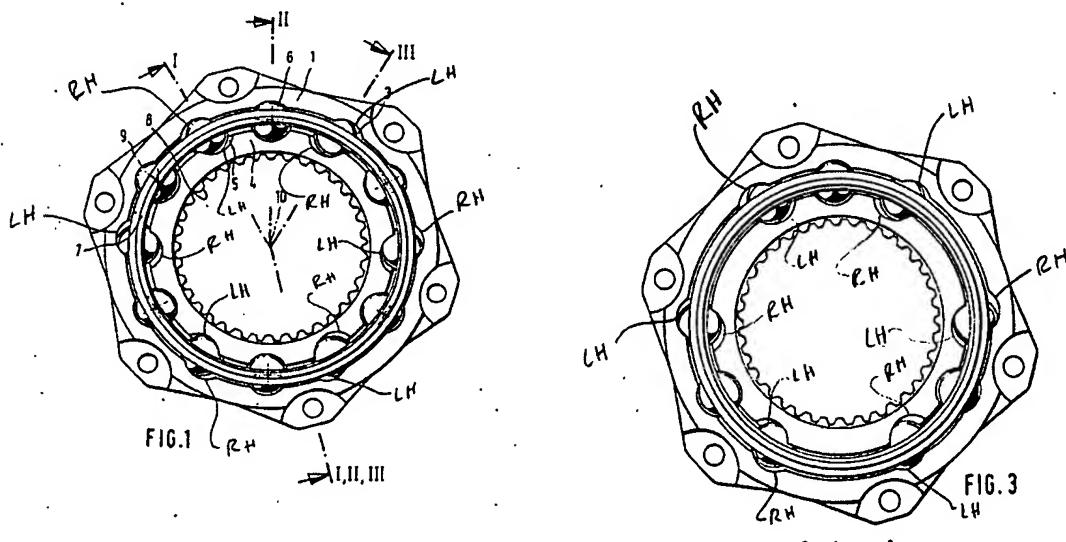
Claims 1, 2, 4, 5, 8, 10, 21 and 22 have been rejected under § 102(b) as being anticipated by US Pat. No. 4,678,453 (Aucktor, et al.).

"It is to be noted that . . . rejections under 35 U.S.C. § 102 are proper only when the claimed subject matter *is* identically disclosed or described in 'the prior art.'" Application of Arkley, 455 F.2d 586, 587 (C.C.P.A. 1972) (emphasis in original).

Aucktor, et al. '453 does not identically disclose or describe the claimed subject matter.

Independent claim 1 calls for an inner joint member having a longitudinal axis centered with respect thereto and an outer surface defining a plurality of radially outwardly facing substantially helical grooves including at least one pair of right-hand twist grooves and at least one pair of left-hand twist grooves, the grooves of each said pair of right-hand twist grooves being located on opposite sides of said inner joint member longitudinal axis, the grooves of each said pair of left-hand twist grooves being located on opposite sides of said inner joint member longitudinal axis.

Referring to Figs. 1 and/or 3 of Aucktor, et al. '453 (depicted below), it is clearly shown that on the inner joint member the grooves of each pair of right-hand twist grooves are not located on opposite sides of the inner joint member longitudinal axis. Nor are the grooves of each pair of left-hand twist grooves located on opposite sides of the inner joint member longitudinal axis. Rather, Aucktor, et al. teach an inner joint member (and an outer joint member) having a pair of right and left-hand twist grooves, the grooves of the pair being located on opposite sides of its longitudinal axis.



Figs. 1 and 3 of Aucktor, et al. '453

Independent claim 10 calls for an inner joint member having a longitudinal axis centered with respect thereto and an outer surface defining a plurality of radially outwardly facing substantially helical grooves, wherein each said helical groove curves

in the same rotational direction as a corresponding helical groove disposed on an opposite side of said longitudinal axis does, said plurality of radially outwardly facing substantially helical grooves including a pair of right-hand grooves and a pair of left-hand grooves.

Referring again to Figs. 1 and 3 of Aucktor, et al. '453 (above), the reference teaches an inner joint member in which each helical groove thereof curves in an opposite rotational direction as a corresponding inner joint member helical groove disposed on an opposite side of the longitudinal axis does. That is, each pair of oppositely-located helical grooves includes a right-hand groove and a left-hand groove.

Because Aucktor, et al. '453 fails to identically disclose or describe the invention of independent claim 1 (and thus of claims 2, 4, 5, 8 and 22 that depend therefrom) or independent claim 10 (and thus of claim 21 that depends therefrom), the rejections of claims 1, 2, 4, 5, 8, 10, 21 and 22 under § 102(b) over this reference is improper.

Appellants further submit that modification of the placement or orientation of the grooves in the joint disclosed in Aucktor, et al. '453 such that the oppositely-located helical grooves would curve in the same direction would destroy the intent, purpose and/or function of the invention disclosed thereby, and respectfully remind the Board that the general rule is that a § 103 rejection based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference is not proper and the *prima facie* case of obviousness cannot properly be made. In other words, where there is no technological motivation for engaging in the modification and instead a disincentive, the rejection is improper. In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984).

2. Ground for Rejection: Anticipation by DE 3818730

Claims 1, 2, 4, 5 and 8-22 have been rejected under § 102(b) as being anticipated by DE 3818730.

“Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration.” W.L. Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540, 1554 (Fed. Cir. 1983) (citing Soundscriber Corp. v. U.S., 360 F.2d 954, 960, 148 U.S.P.Q. 298, 301, adopted, 149 U.S.P.Q. 640 (Ct.Cl. 1966)). DE 3818730 does not disclose each element of any of claims 1, 2, 4, 5 and 8-22.

As noted above, independent claim 1 calls for an inner joint member having a longitudinal axis centered with respect thereto and an outer surface defining a plurality of radially outwardly facing substantially helical grooves including at least one pair of right-hand twist grooves and at least one pair of left-hand twist grooves, the grooves of each said pair of right-hand twist grooves being located on opposite sides of said inner joint member longitudinal axis, the grooves of each said pair of left-hand twist grooves being located on opposite sides of said inner joint member longitudinal axis.

Referring to Fig. 2 of DE 3818730 (shown below) it is clear that the reference teaches inner joint member helical grooves that are all of the same rotational direction (shown as being all left-hand twist). Fig. 4 of DE 3818730 (also shown below) alternatively shows that on the inner joint member the grooves of each pair of right-hand twist grooves are not located on opposite sides of the inner joint member longitudinal axis. Nor are the grooves of each pair of left-hand twist grooves located on opposite sides of the inner joint member longitudinal axis. Rather, Fig. 4 of the reference teaches an inner joint member (and an outer joint member) having a pair of right and left-hand twist grooves, the grooves of the pair being located on opposite sides of its longitudinal axis.

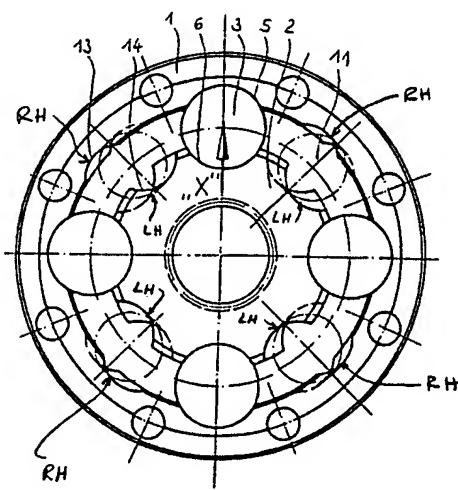


Fig. 2

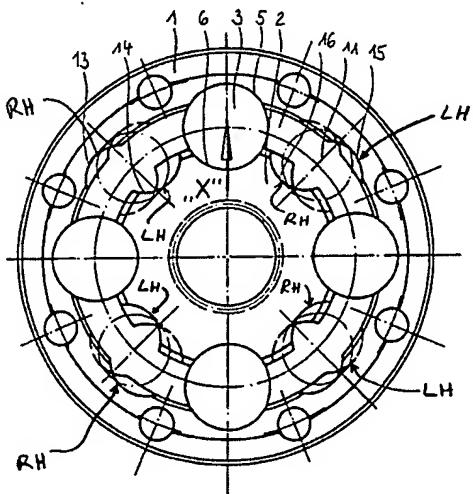


Fig. 4

Figs. 2 and 4 of DE 3818730

As noted above, independent claim 10 calls for an inner joint member having a longitudinal axis centered with respect thereto and an outer surface defining a plurality of radially outwardly facing substantially helical grooves, wherein each said helical groove curves in the same rotational direction as a corresponding helical groove disposed on an opposite side of said longitudinal axis does, said plurality of radially outwardly facing substantially helical grooves including a pair of right-hand grooves and a pair of left-hand grooves. Referring to Fig. 2 of DE 3818730, the reference teaches an inner joint member having a plurality of radially outwardly facing substantially helical grooves that does not include a pair of right-hand grooves. Rather Fig. 2 discloses two pairs of left-hand grooves.

Referring to Fig. 4 of DE 3818730, the reference teaches an inner joint member in which each helical groove thereof curves in an opposite rotational direction as a corresponding inner joint member helical groove disposed on an opposite side of the longitudinal axis does.

Independent claim 12 calls for an inner joint member having a longitudinal axis centered with respect thereto and an outer surface a plurality of radially outwardly facing grooves including four substantially helical grooves, two of the helical grooves extending in a right-hand rotational direction and disposed on opposite sides of the longitudinal axis, two of the helical grooves extending in a left-hand rotational direction and disposed on opposite sides of the longitudinal axis. As previously noted, Fig. 2 of DE 3818730 shows an inner joint member having a plurality of radially outwardly facing substantially helical grooves that does not include a pair of right-hand grooves. Rather Fig. 2 discloses two pairs of left-hand grooves.

As also previously noted, Fig. 4 of DE 3818730 shows that on the inner joint member the grooves of each pair of right-hand twist grooves are not located on opposite sides of the inner joint member longitudinal axis. Nor are the grooves of each pair of left-hand twist grooves located on opposite sides of the inner joint member longitudinal axis. Rather, Fig. 4 of the reference teaches an inner joint member (and an outer joint member) having a pair of right and left-hand twist grooves, the grooves of the pair being located on opposite sides of its longitudinal axis.

Because DE 3818730 fails to disclose each element of any of independent claim 1 (and thus any of claims 2, 4, 5, 8, 9, 16-20 and 22 depending therefrom), independent

claim 10 (and thus either of claims 11 and 21 depending therefrom) and independent claim 12 (and thus any of claims 13-15 depending therefrom), the rejections of claims 1, 2, 4, 5 and 8-22 under § 102(b) over this reference is improper.

3. Ground for Rejection: Obviousness over Aucktor, et al. '453 in view of Schwarzler '777

Claims 9 and 11-20 have been rejected under § 103(a) as being obvious over Aucktor, et al. '453 in view of US Pat. No. 5,685,777 (Schwarzler). At page 13, paragraph 3 of the April 13, 2006, Office Action, the Examiner refers to claim 3, which was previously canceled. Appellants infer that the Examiner meant claim 9 instead of claim 3.

In rejecting claims 9 and 16-20, which all depend from independent claim 1 (which was not rejected under § 103(a)), the Examiner variously relies on the disclosure of Schwarzler '777 in no manner that properly renders independent claim 1 obvious over any combination of Aucktor, et al. '453 and Schwarzler '777. "Dependent claims are nonobvious under §§ 103 if the independent claims from which they depend are nonobvious." Hartness Int'l, Inc. v. Simplimatic Eng'g Co., 819 F.2d 1100, 1108, 2 U.S.P.Q.2d 1826, 1831 (Fed. Cir. 1987). Therefore, no rejection of dependent claims 9 and 16-20 under § 103 based on any combination of Aucktor, et al. '453 and Schwarzler '777 can be proper under the holding of Hartness Int'l Inc., for no combination of these references renders independent claim 1 obvious under the statute. As noted above in connection with the first ground for rejection, Appellants submit that modification of the placement or orientation of the grooves in the joint disclosed in Aucktor, et al. '453 will destroy the intent, purpose and/or function of the invention disclosed thereby, and respectfully remind the Board that the general rule is that a § 103 rejection based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference is not proper and the *prima facie* case of obviousness cannot properly be made. In other words, where there is no technological motivation for engaging in the modification and instead a disincentive, the rejection is improper. In re Gordon, 733 F.2d 900, 902, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984). Appellants submit there is no technological motivation disclosed in the cited prior art for engaging in a modification of the joint of Aucktor, et al. '453 that would yield the invention of

independent claim 1.

For the above reasons, none of claims 1 and its dependent claims may properly be rendered obvious under § 103 over Aucktor, et al. '453 alone or in combination with any other reference of record.

Similarly, in rejecting claim 11 which depends from independent claim 10 (which was not rejected under § 103(a)), the Examiner relies on the disclosure of Schwarzler '777 in a manner that does not properly render claim 10 obvious over any combination of Aucktor, et al. '453 and Schwarzler '777, for there is no technological motivation disclosed in the cited prior art for engaging in a modification of the joint of Aucktor, et al. '453 to yield the invention of independent claim 10. Therefore, under Hartness Int'l, Inc., no combination of these references properly renders dependent claim 11 obvious under the statute. For the above-stated reasons, neither of claims 10 and 11 may properly be rendered obvious under § 103 over Aucktor, et al. '453 alone or in combination with any other reference of record.

In traversing the rejections of claims 12-15 under § 103(a) over Aucktor, et al. '453 in view of Schwarzler '777, Appellants submit that no combination of these references may properly render independent claim 12 (and thus dependent claims 13-15) obvious under that statute. As noted above, In re Gordon reiterates the general rule that a § 103 rejection based upon a modification of a reference that destroys the intent, purpose or function of the invention disclosed in the reference is not proper and the *prima facie* case of obviousness cannot properly be made. 773 F.2d 902, 221 U.S.P.Q. 1127. Appellants submit that modification of the placement or orientation of the grooves in the joint disclosed in Aucktor, et al. '453 will destroy the intent, purpose and/or function of the invention disclosed thereby. Moreover, no teaching in Schwarzler '777 suggests modifying the groove orientation and placement taught by Aucktor, et al. '453 to yield the invention of any of claims 12-15.

CONCLUSION

In view of the foregoing, Appellants respectfully submit that the claim rejections made by the Examiner are all in error and urge that the final rejections of claims 1, 2, 4, 5 and 8-22 be overturned.

Appellants request that the fee called for by 37 CFR 41.20(b)(2) in connection

with the filing of this Brief be charged to Deposit Account 50-0831, Delphi Technologies, Inc. In the event Appellants have overlooked the need for extension of time, Appellants hereby petition therefor, and authorize that any required payment of a fee or additional fee amount associated with the filing of this Notice also be charged to Deposit Account 50-0831, Delphi Technologies, Inc.

Respectfully submitted,



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Registration No. 40,181

Attorney for Appellants

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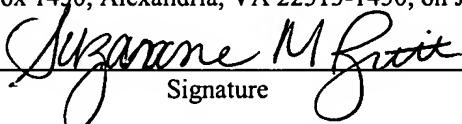
January 10, 2007

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CLAIMS APPENDIX

1. A stroking ball-type constant velocity joint comprising:

an inner joint member having a longitudinal axis centered with respect to said inner joint member and an outer surface defining a plurality of radially outwardly facing substantially longitudinal grooves in combination with a plurality of radially outwardly facing substantially helical grooves, said plurality of longitudinal grooves including at least one pair of substantially straight grooves extending substantially in parallel with said inner joint member longitudinal axis, said grooves of each said pair of longitudinal grooves being located on opposite sides of said inner joint member longitudinal axis, said plurality of helical grooves including at least one pair of right-hand twist grooves and at least one pair of left-hand twist grooves, the grooves of each said pair of right-hand twist grooves being located on opposite sides of said inner joint member longitudinal axis, the grooves of each said pair of left-hand twist grooves being located on opposite sides of said inner joint member longitudinal axis;

an outer joint member having an inner surface disposed about said inner joint member outer surface, said outer joint member inner surface having a plurality of radially inwardly facing grooves defined in said inner surface; and

a plurality of balls disposed between said inner and outer joint members, a ball of said plurality of balls disposed in each said inner joint member radially outwardly facing groove and in a corresponding one of said outer joint member radially inwardly facing grooves, torque transmission between said inner and outer joint members being through said balls.

2. The stroking ball-type constant velocity joint of claim 1 wherein said outer joint member has a longitudinal axis centered with respect to said outer joint member and said plurality of radially inwardly facing grooves includes a plurality of inwardly facing substantially longitudinal grooves in combination with a plurality of radially inwardly facing substantially helical grooves, said plurality of inwardly facing longitudinal grooves including at least one pair of substantially straight grooves extending substantially in parallel with said outer joint member longitudinal axis, said grooves of each said pair of radially inwardly facing longitudinal grooves being located on opposite sides of said outer joint member longitudinal axis, said plurality of radially inwardly facing helical grooves including at least one pair of right-hand twist grooves and at least one pair of left-hand twist grooves, the grooves of each said pair of radially inwardly facing right-hand twist grooves being located on opposite sides of said outer joint member longitudinal axis, the grooves of each said pair of radially inwardly facing left-hand twist grooves being located on opposite sides of said outer joint member longitudinal axis; and

wherein each said pair of radially outwardly facing longitudinal grooves is engaged with a said pair of radially inwardly facing longitudinal grooves through a pair of said balls.

3. (Canceled)

4. The stroking ball-type constant velocity joint of claim 1, wherein each of said substantially helical grooves is located between two of said substantially longitudinal grooves.

5. The stroking ball-type constant velocity joint of claim 1 wherein said substantially helical grooves and said substantially longitudinal grooves are disposed in alternating relation along said outer surface of said inner joint member.

6. (Canceled)

7. (Canceled)

8. The stroking ball-type constant velocity joint of claim 1, wherein a first helical groove is located between second and third helical grooves, said second and third helical grooves extending in an opposite rotational direction relative to said first helical groove.

9. The stroking ball-type constant velocity joint of claim 1 wherein said plurality of radially outwardly facing grooves includes eight grooves.

10. A stroking ball-type constant velocity joint comprising:
an inner joint member having a longitudinal axis centered with respect to said inner joint member and an outer surface defining a plurality of radially outwardly facing longitudinal grooves in combination with a plurality of radially outwardly facing substantially helical grooves, wherein each said helical groove curves in the same rotational direction as a corresponding helical groove disposed on an opposite side of said longitudinal axis does, said plurality of radially outwardly facing substantially helical grooves including a pair of right-hand grooves and a pair of left-hand grooves; and

a plurality of balls individually disposed in and movable along said plurality of radially outwardly facing substantially helical grooves; and

an outer joint member having an inner surface defining a plurality of radially inwardly facing substantially helical grooves wherein said plurality of radially outwardly facing substantially helical grooves of said inner joint member cooperate with said plurality of radially inwardly facing substantially helical grooves of said outer joint member forming a plurality of passages guiding movement of said plurality of balls and wherein said plurality of balls transmit torque between said inner joint member and said outer joint member.

11. The stroking ball-type constant velocity joint of claim 10, wherein said inner joint member includes a first end and a second end, and said grooves of said plurality of radially outwardly facing grooves extend from said first end to said second end and include four substantially longitudinal grooves located along said outer surface at ninety degrees from one another and four substantially helical grooves individually located along said outer surface and between two of said four substantially longitudinal grooves, and wherein each of said substantially helical grooves extends in an opposite rotational direction relative to the rotational direction in which the two helical grooves adjacent thereto extend.

12. A stroking ball-type constant velocity joint comprising:

an inner joint member having a longitudinal axis centered with respect to said inner joint member and a first end and a second end and an outer surface defining a plurality of radially outwardly facing grooves extending from said first end to said second end including four substantially longitudinal grooves disposed along said outer surface ninety degrees from one another and four substantially helical grooves, each helical groove disposed along said outer surface between two of said four substantially longitudinal grooves, two of said helical grooves extending in a right-hand rotational direction and disposed on opposite sides of said longitudinal axis, two of said helical grooves extending in a left-hand rotational direction and disposed on opposite sides of said longitudinal axis;

a plurality of balls individually disposed in and movable along said plurality of radially outwardly facing grooves;

a cage surrounding said inner joint member and defining a plurality of windows wherein each of said plurality of balls is individually disposed in one of said plurality of windows, said plurality of windows including short windows adjacent said substantially longitudinal grooves and long windows adjacent said substantially helical grooves; and

an outer joint member surrounding said cage and having a third end and a fourth end and an inner surface defining a plurality of radially inwardly facing grooves extending from said third end to said fourth end including four substantially longitudinal grooves disposed along said inner surface ninety degrees from one another and four substantially helical grooves individually disposed along said inner surface between two of said four substantially longitudinal grooves and wherein said plurality of outwardly facing grooves of said inner joint member cooperate with said plurality of inwardly facing grooves of said outer joint member forming a plurality of passages guiding movement of said plurality of balls.

13. The stroking ball-type constant velocity joint of claim 12 wherein said substantially helical grooves and said substantially longitudinal grooves are disposed in alternating relation along said outer surface of said inner joint member.

14. The stroking ball-type constant velocity joint of claim 12 wherein each of said helical grooves of said inner joint member and each of said helical grooves of said outer joint member extends in opposite relation to two adjacent helical grooves.

15. The stroking ball-type constant velocity joint of claim 12, wherein at least one of said plurality of passages is defined by a first helical groove of said inner joint member and a second helical groove of said outer joint member, and wherein said first and second helical grooves extend in opposite rotational directions relative to one another.

16. The stroking ball-type constant velocity joint of claim 9 wherein said inner joint member is further defined as having four longitudinal grooves spaced substantially ninety degrees apart from one another about said centered longitudinal axis.

17. The stroking ball-type constant velocity joint of claim 16 wherein said plurality of radially outwardly facing substantially helical grooves is further defined as including two right-hand helical grooves spaced substantially one hundred and eighty degrees apart from one another about said centered longitudinal axis.

18. The stroking ball-type constant velocity joint of claim 17 wherein said plurality of radially outwardly facing substantially helical grooves is further defined as including two left-hand helical grooves spaced substantially one hundred and eighty degrees apart from one another about said centered longitudinal axis.

19. The stroking ball-type constant velocity joint of claim 18 wherein each of said two left-hand helical grooves is spaced substantially ninety degrees apart from each of said two right-hand grooves about said centered longitudinal axis.

20. The stroking ball-type constant velocity joint of claim 1 wherein said plurality of radially outwardly facing substantially helical grooves is further defined as including the same number of left-hand grooves and right-hand grooves.

21. The stroking ball-type constant velocity joint of claim 10 further comprising:

a cage surrounding said inner joint member and defining a plurality of windows wherein each of said plurality of balls individually is disposed in one of said plurality of windows, said plurality of windows including short windows adjacent said substantially longitudinal grooves and long windows adjacent said substantially helical grooves.

22. The stroking ball-type constant velocity joint of claim 2, wherein a said pair of radially outwardly facing right-hand twist grooves are engaged with a said pair of radially inwardly facing left-hand twist grooves through a pair of said balls, and a said pair of radially outwardly facing left-hand twist grooves are engaged with a said pair of radially inwardly facing right-hand twist grooves through a pair of said balls.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.